

LUCAS COUNTY ENGINEER'S OFFICE

CAD STANDARDS



Sequential Guidelines for Retriever and AutoCAD File Generation and Processing

- **Section 1 – Field Book Check and Generating and Reviewing Retriever Files**
- **Section 2 - Creating DXF file for Initial Topography**
- **Section 3 – Creating a New Description Point File for Import**
- **Section 4 - Running AutoCAD and Using Template file for Topo Insertion**
- **Section 5 – Running SoftDesk**

Section 1 - Field Book Check

Field Book Check

- 1. Check Bench Run**
- 2. Check each setup input data for correct coordinates, site bench elevation and H.I. calculation.**
- 3. Look over control sheet layout and control point coordinates to determine whether the data files can be combined or whether segments of data need to be brought into AutoCAD separately and then rotated. (Note: The latter part of #3 should not happen now, because the process of keeping separate data tied together in a survey should be handled out in the field, but this might not always be the case.)**

Review all field book pages for any important notations.

Generating and Reviewing Retriever Report Files for Field Checks

- 1. Create a named folder for your project under the directory “Project”. Next, copy all files from the survey disk you received into your project subdirectory. (Ex. C:\Project\YourProject)**
- 2. Now you are ready to run Retriever. You should have Retriever installed on your computer with an icon already on the desktop. If so, double-click on the icon, otherwise click on start, programs, then the MS-Dos prompt. When the Dos prompt comes up, type in “cd\ret”, then hit enter. Then type “ret”, then hit enter. Now you should be at the same point as if you had double-clicked the icon. Hit enter again. Type in your project subdirectory name, followed by a forward slash (/) and the letter f. Then enter.**
 - 2a. If your project has adjacent surveys (.HVE files), that need to be combined, do the following:**

While at the Retriever System Main Menu, enter “7”, then enter. At the Retriever Utilities Menu, enter “6”, then enter. Now type in the appropriate .HVE files to combine into your overall PROJECT.HVE file. After you’ve entered the last .HVE file, hit enter twice. Then “q”, then enter. This will take you back to the Main Menu.
- 3. Enter the number “5” and enter. Enter the number “11” and enter, then enter the following: “C:\PROJECT\YOURPROJECT\CONTROL.RPT” and enter. Now you’re ready to go onto setting the code ranges for your “Control Report”. Enter once more.**

4. Enter the number “1” to set the code ranges. Note: code range #1 cannot be changed, but you will be adding code ranges #2 -#10. Listed below are the code ranges for #2 through #10 (These are strictly for creating the Control Report) :

<u>Range:</u>	<u>Code:</u>
2	65,65
3	303,303
4	319,320
5	375,379
6	385,385
7	397,397
8	419,420
9	427,427
10	443,444

Once code ranges are entered, hit enter and all new code ranges will be listed. Hit enter again and it will begin scanning the Control Report. Once scanned, hit enter once more, Retriever processes, then “e” for exit and you’re ready to check the benchmark run, field notes and drainage. The file to check will be “C:\PROJECT\YOURPROJECT\CONTROL.RPT”.

Control Report Check

1. Check each setup in the report against each setup in the field book.
 - a. Codes 20 through 24 must be present. Check the report data against the field book data.
2. Check each code 40 (control point check-in) set of coordinates in the report against the set of coordinates in the field book.
3. Check each code 30 (site bench check-in) elevation in the report against the field book.
4. Check all pipe shots to determine if shot was taken @ invert.

Section 2 – Creating DXF file for Initial Topography

Before running Retriever again, be sure you’ve copied the following downloads into the appropriate directories.

Acad.lin – c:\program files\autocad r14\support or c:\program files\land desktop r2\support
Drawing.set – c:\ret Lucas.sym – c:\ret
Laltco.dwt – c:\program files\autocad r14\template or c:\program files\land desktop r2\template
Lucasco.pcp – at your discretion

Running Retriever

1. After field book and control report checks are completed, you are ready to create the DXF file for AutoCAD. Follow the same procedures as before to execute Retriever. Remember, when you are prompted by Retriever for “YourProject” name, include the “/f” parameter.
2. In the next menu listing, enter number “5” and hit enter. In the next menu selection, you are going to change one of the default Retriever files it uses to a customized file. Enter number “5”, hit enter and type in the following: C:\RET\LUCAS.SYM and hit enter. Then hit enter again.
3. On the next screen, you are going to want to change the code ranges back to include them all. The way to do that is, enter number “1”, hit enter and you will be prompted to enter the code range for “Range 2”. Enter the following: 50,999 and hit enter twice. Then hit enter once more. Scanning begins.
4. The next screen indicates minimum and maximum x, y and z coordinates. This screen is a good indicator of the elevation range of your project and will tell you immediately if there is a problem in the elevation range. Hit enter.
5. The next screen, the Parameter Menu, allows to setup the parameters of your DXF file and how it will come into AutoCAD. Please note that there are only 3 of these options that you need be concerned with. Options 2, 3 and 6. Enter the number “2” for the “Plot Scale” and hit enter. Enter in “20” or , if the project requires a different plot scale, enter that scale and hit enter. Enter in the number “3”. Again enter in “20” or required “Symbol Scale” and hit enter. Now enter the number “6”, hit enter and then “3”. Hit enter twice. Final processing begins.
6. Once processing is completed, Retriever program returns to the main menu. Enter “e” and hit enter. Retriever exits and your new DXF file resides in the following location:
C:\PROJECT\YOURPROJECT\YOURPROJECT.DXF

Section 3 – Creating a New Description Point File for Import

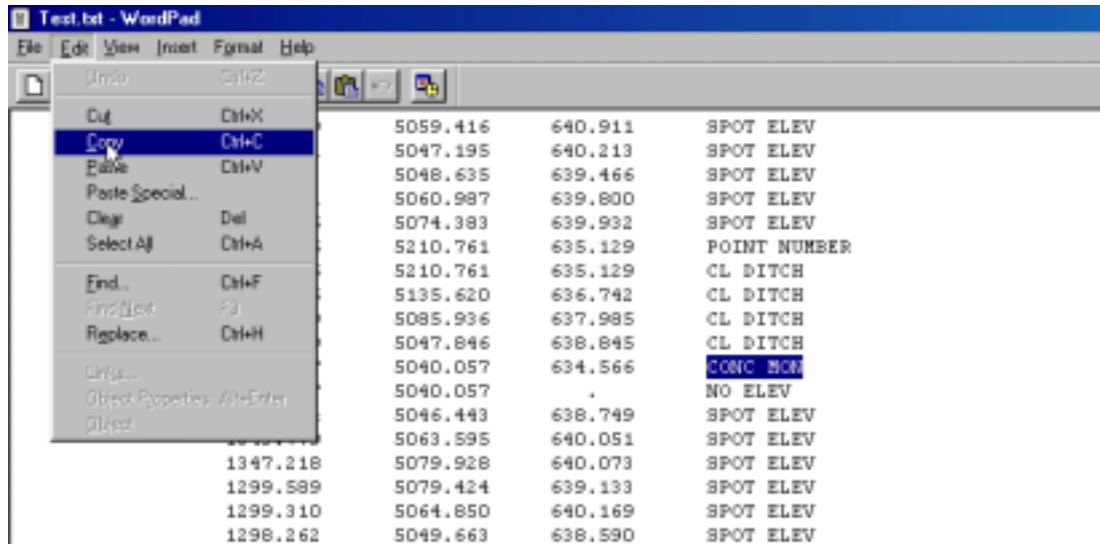
Retriever .NEE File / Description Converter

1. Before running AutoCAD, you will need to convert the .NEE file using “NeeCon.exe”, the new code-description converter program. If you don’t have the new converter program, you can download it from the County website:
2. Just double-click on the “CONVERT.EXE” file. The self-extracting file is all setup to install the program on your hard drive in the appropriate directory. Just follow the instructions, then click “Unzip”.
3. After it installs, call up Windows Explorer, reduce the size of the Explorer window. Now click inside the “NeeCon” directory and click, hold and drag the “NeeCon” file, the one that has no extension to it, onto your desktop. This is your icon to start the “NeeCon” program.
4. Once you’ve started the program, the first input will be for the existing .NEE file. Be sure that the .NEE file you’re using has the drive and path: ex. –
C:\PROJECT\YOURPROJECT\YOURPROJECT.NEE. After you input this, hit enter. The next input will be for the new description point file that the program will create.
C:\PROJECT\YOURPROJECT\YOURPROJECT. Again, be sure to include drive and path. Don’t worry about the extension. The program automatically adds that to the file. The extension it adds is “.TXT”. Hit enter.
5. After the new file has been created, you will have to edit it for the “NO ELEV” shots.
6. Follow the proceeding instructions to edit the new file:

You can double-click the new file in Windows Explorer and it should come up in NotePad or WordPad, or use your favorite text editor. Once the file is opened in the editor, go to the first occurrence where the description reads “NO ELEV” and the elevation reads “ . “ using “Find” under the “Edit” pull down. When you find one, if the previous shot taken shares the same x and y coordinate as the “NO ELEV” shot, then this is the first edit that will take place, otherwise continue “Find” down to the next “NO ELEV” shot that does share an x and y coordinate with the previous shot. When you have found one, highlight the previous shots description:

1374.696	5135.620	636.742	CL DITCH
1374.689	5085.936	637.985	CL DITCH
1374.389	5047.846	638.845	CL DITCH
1365.857	5040.057	634.566	CONC MON
1365.857	5040.057	.	NO ELEV
1350.774	5046.443	638.749	SPOT ELEV
1349.779	5063.595	640.051	SPOT ELEV
1347.218	5079.928	640.073	SPOT ELEV

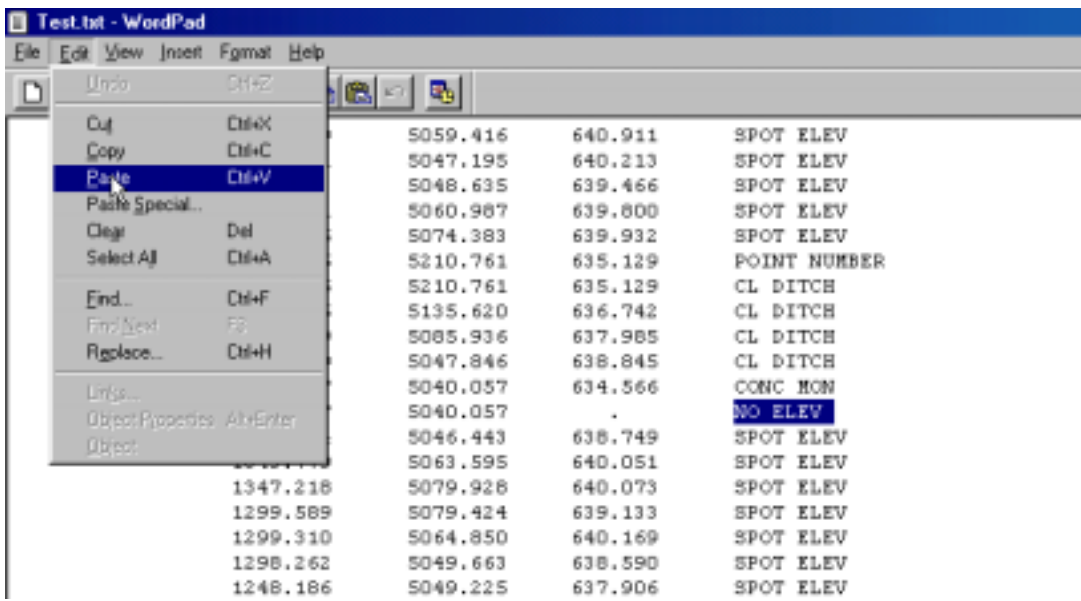
Next, select “Copy” from the “Edit” pull down:



Then, highlight the “NO ELEV” description of the next shot:

1374.689	5085.936	637.985	CL DITCH
1374.389	5047.846	638.845	CL DITCH
1365.857	5040.057	634.566	CONC MON
1365.857	5040.057	.	NO ELEV
1350.774	5046.443	638.749	SPOT ELEV
1349.779	5063.595	640.051	SPOT ELEV
1347.218	5079.928	640.073	SPOT ELEV
1299.589	5079.424	639.133	SPOT ELEV
1299.310	5064.850	640.169	SPOT ELEV

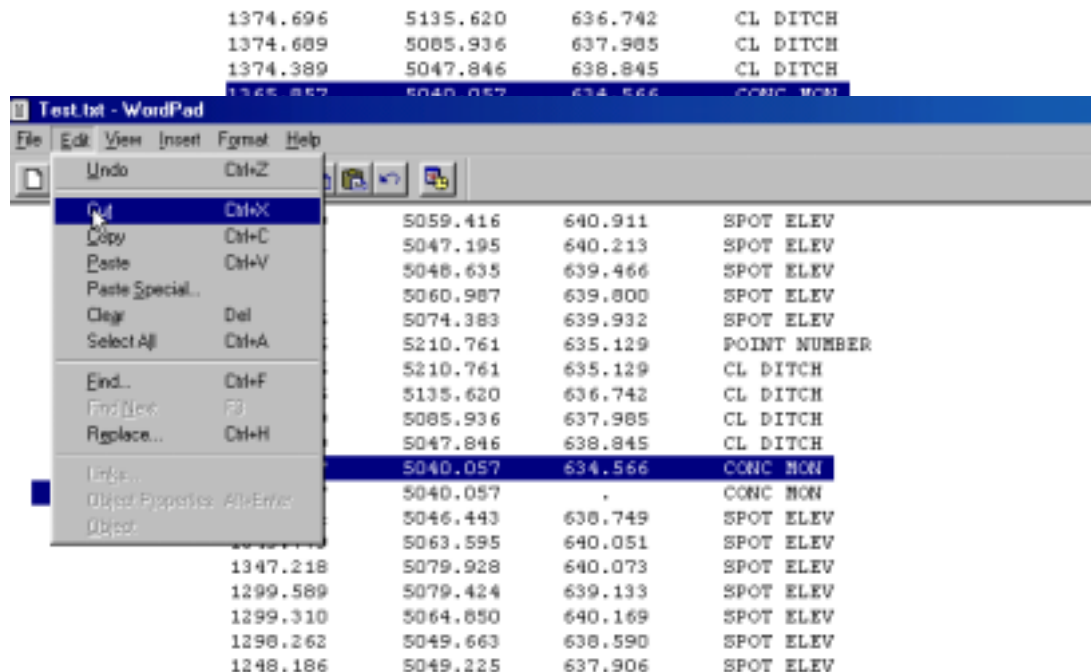
Next, select “Paste” from the “Edit” pull down:



Now the new file should look like this:

1374.696	5135.620	636.742	CL DITCH
1374.689	5085.936	637.985	CL DITCH
1374.389	5047.846	638.845	CL DITCH
1365.857	5040.057	634.566	CONC MON
1365.857	5040.057	.	CONC MON
1350.774	5046.443	638.749	SPOT ELEV
1349.779	5063.595	640.051	SPOT ELEV
1347.218	5079.928	640.073	SPOT ELEV
1299.589	5079.424	639.133	SPOT ELEV

The next step is to highlight the following exactly as shown:



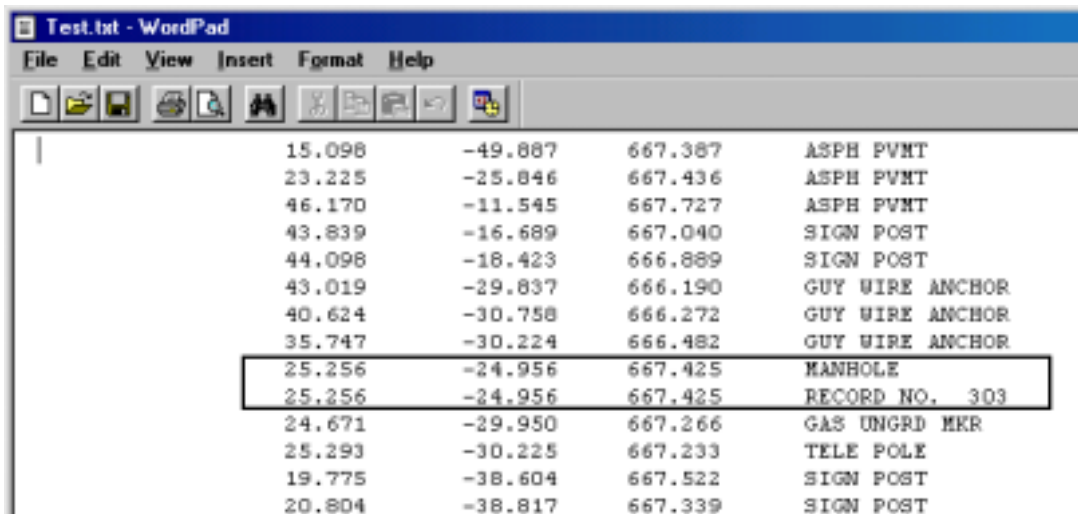
Next, select “Cut” from the “Edit” pull down:

The new file where the first occurrence of a “NO ELEV” shot appeared is properly edited and should appear as follows indicated by the arrow:

1374.895	5210.761	635.129	POINT NUMBER
1374.895	5210.761	635.129	CL DITCH
1374.696	5135.620	636.742	CL DITCH
1374.689	5085.936	637.985	CL DITCH
1374.389	5047.846	638.845	CL DITCH
1365.857	5040.057	.	CONC MON
1350.774	5046.443	638.749	SPOT ELEV
1349.779	5063.595	640.051	SPOT ELEV
1347.218	5079.928	640.073	SPOT ELEV
1299.589	5079.424	639.133	SPOT ELEV
1299.310	5064.850	640.169	SPOT ELEV

Now repeat the previous steps throughout the rest of the new file until all the appropriate “NO ELEV” shots have been edited, then save your file.

Please note – Shots that share x, y and z values that have the descriptions “RECORD NO. *****” and “MANHOLE” OR “ROUND CB”; etc. are required for a few of reasons. First, the description field can only contain 15 characters. Second, the “RECORD NO. *****” description will refer you back to the field book for the inverts taken at this location and, third, so the other description informs you what the object is, as does the other descriptions. See proceeding figure:



15.098	-49.887	667.387	ASPH PVMT
23.225	-25.846	667.436	ASPH PVMT
46.170	-11.545	667.727	ASPH PVMT
43.839	-16.689	667.040	SIGN POST
44.098	-18.423	666.889	SIGN POST
43.019	-29.837	666.190	GUY WIRE ANCHOR
40.624	-30.758	666.272	GUY WIRE ANCHOR
35.747	-30.224	666.482	GUY WIRE ANCHOR
25.256	-24.956	667.425	MANHOLE
25.256	-24.956	667.425	RECORD NO. 303
24.671	-29.950	667.266	GAS UNGRD MKR
25.293	-30.225	667.233	TELE POLE
19.775	-38.604	667.522	SIGN POST
20.804	-38.817	667.339	SIGN POST

Section 4 – Running AutoCAD and Using Template file for Topo Insertion

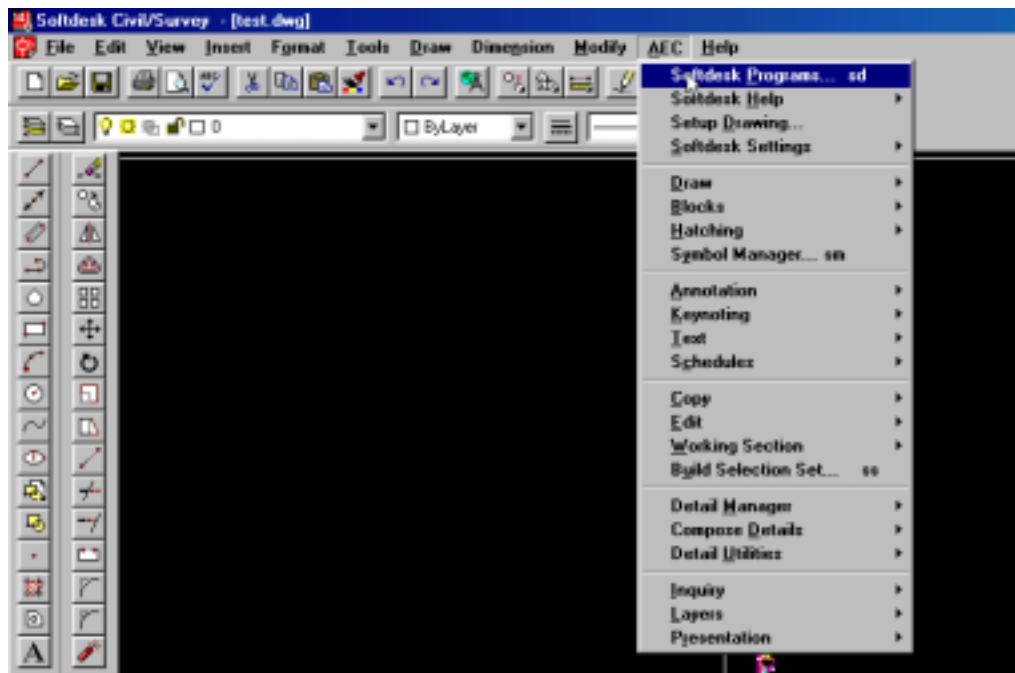
Running AutoCAD

1. Begin AutoCAD (NOT SOFTDESK). Use the “DXFIN” command and DXFIN your new DXF file. After you have successfully brought the DXF file into your new drawing, use the “Save As” on the “File” pulldown or type in “saveas” at the command line. Now, save your new drawing as “C:\PROJECT\YOURPROJECT\TOPO.DWG:”
2. Click on “File”, then “New” in AutoCAD. Select “Use a Template” button and under the “Select a Template” window, pick the “LALTCO.DWT” file. Click on “OK”.

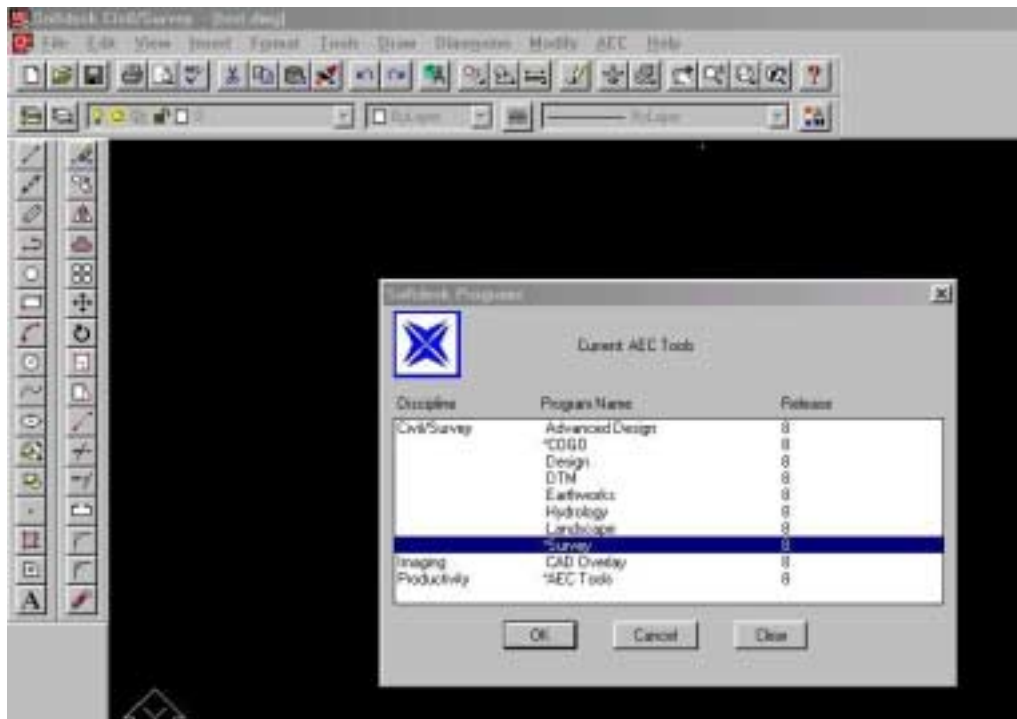
3. Next, use the “Insert” command either from the pull down or type in “DDINSERT”.
When using the pull down, click on “INSERT”, then “BLOCK”. After the Insert dialogue box comes up, click on the “File” button and browse to your project directory where you saved the “TOPO.DWG”. Be sure to click the “Explode” box to on, so your drawing explodes as its being inserted so you don’t have to purge that block out later. Click “OK”. Use 0,0 as your insertion point and just hit enter on the scale factor and rotation angle. Finally, “Zoom Extents”.
4. Now you can save your drawing by an appropriate name in your project directory. Exit AutoCAD.
5. Your drawing is now ready for SoftDesk.

Section 5 – Running SoftDesk

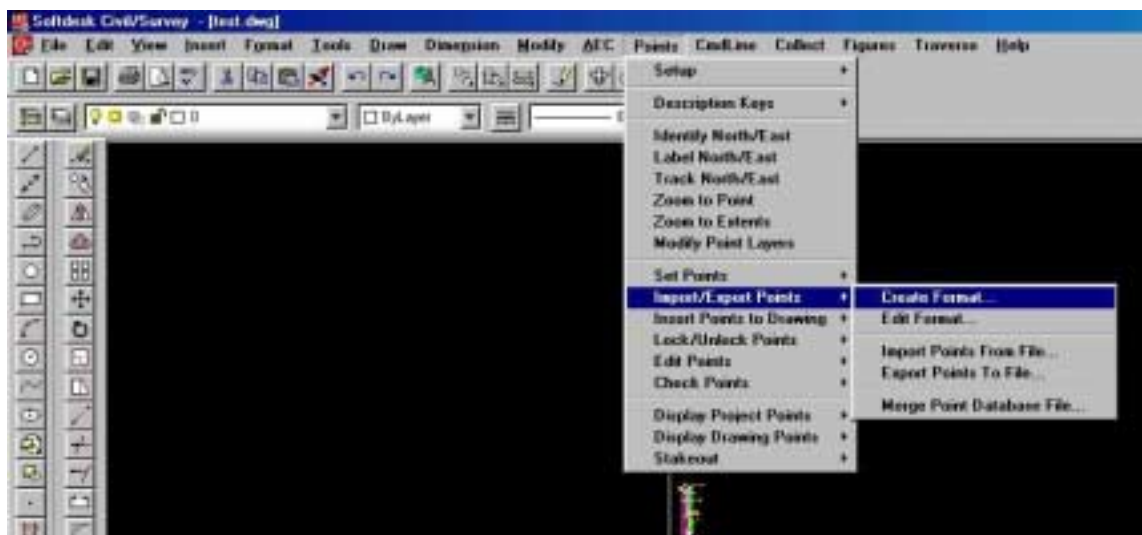
1. Once you have started SoftDesk, call up your new drawing. When loaded and you’ve created the Project files, go to the “AEC” menu pull down and select “SoftDesk Programs”:



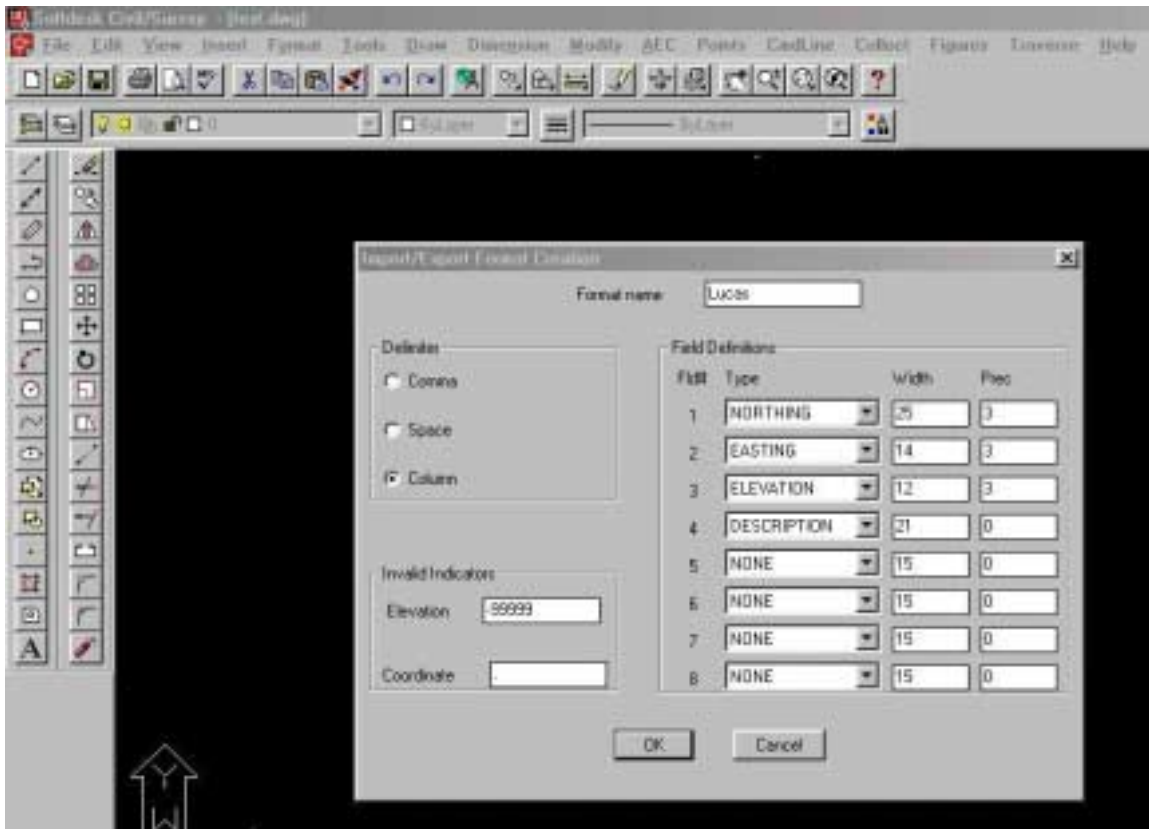
2. Next, select any of the modules that allows you to import point files:



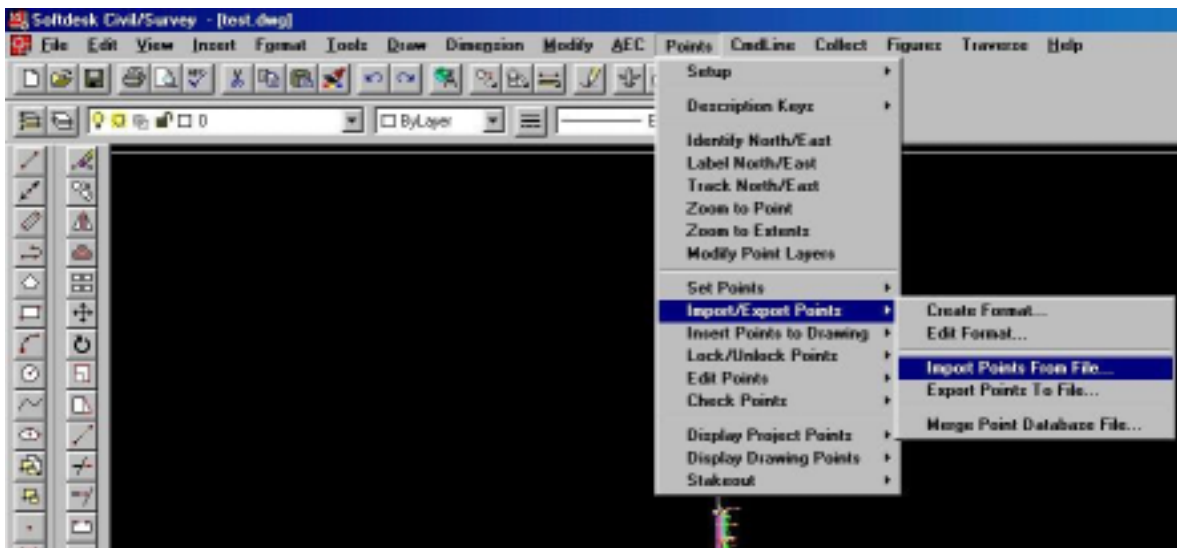
- Go to “Points” pull down menu, “Import/Export”, then “Create Format” (You will only have to create this format once):



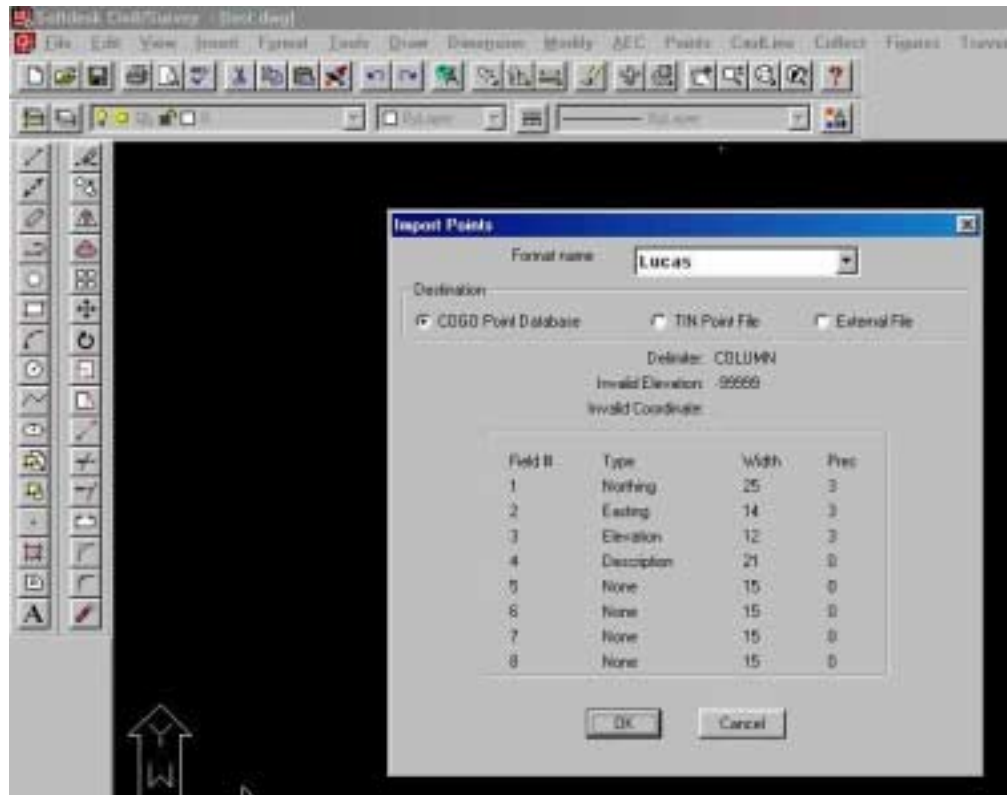
- Now fill out the dialogue box as follows and click on “OK”:



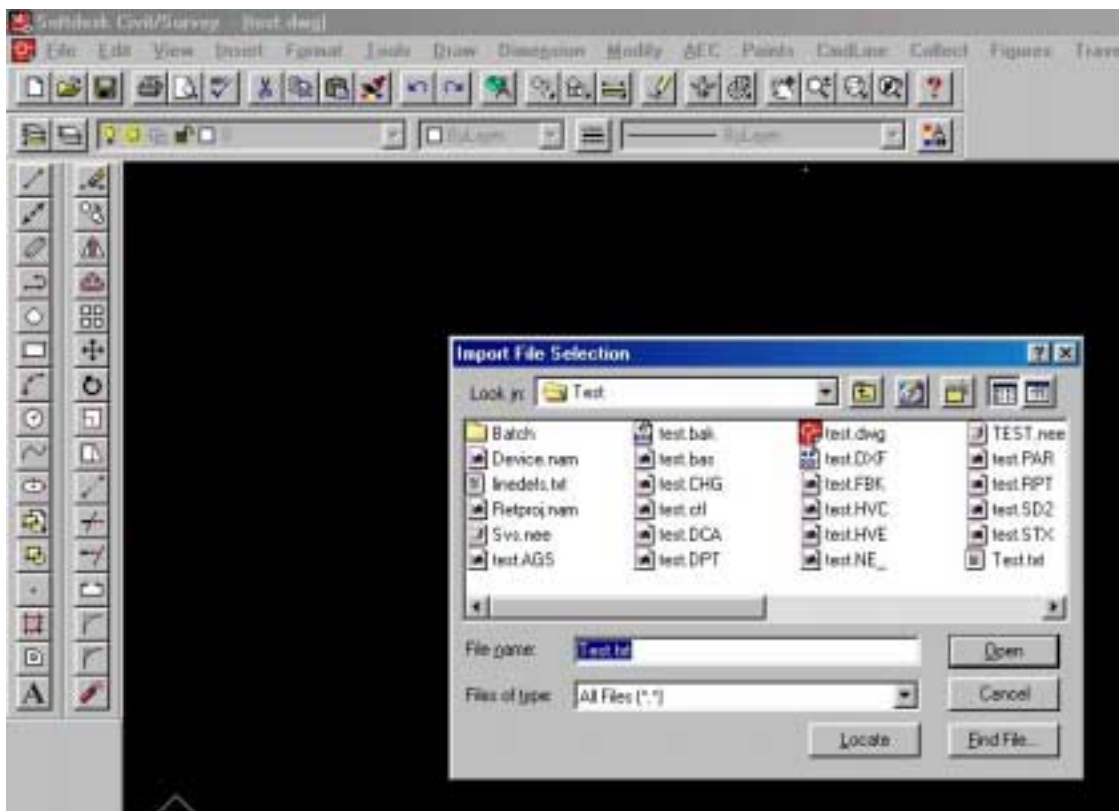
5. Go back to “Points” pull down, then to “Import/Export Points”, then “Import Points from File”:



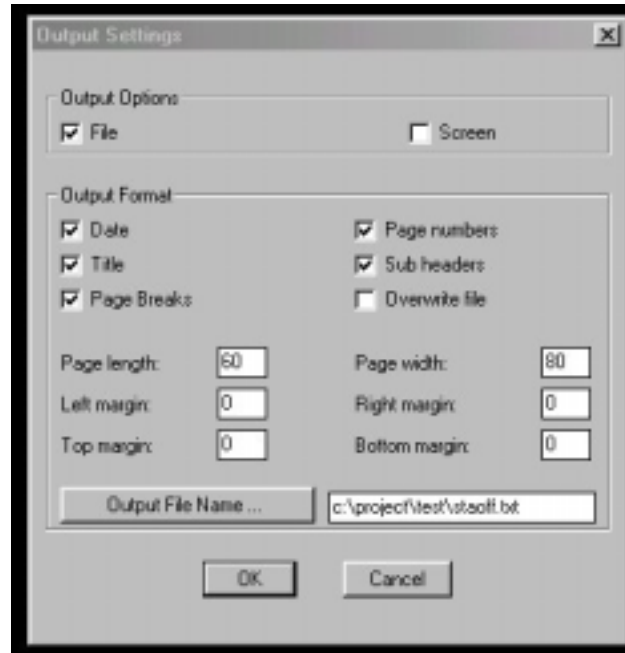
6. The next dialogue box that comes up, you should only have to click “OK”:



7. Now browse to your new description file located in your project directory:



8. After the new point file is imported, set up your Alignment (Baseline) Control.
9. If “Align” pull down is not in the currently loaded SoftDesk module, go to “AEC” pull down and select the appropriate module.
10. Next, define your alignment. Also make sure your “ASCII Output Settings” are correct from the “Align” pull down:



11. Now select “Align”, then Station/Offset, then “Display Points”:



12. Now you should have a “.TXT” file in your project directory that shows the stations and offsets with the correct descriptions. From this point, you are ready to do your TIN, Profile and Cross Sections:

Standalone WordPad

File Edit View Insert Format Help

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Project: test Fri Dec 03 09:26:53 1999

Station & Offset Listing by Selection

Point	Station	Offset	Elevation	Description
1327	0+00.17	-9.9000	666.92	ASPH PVT
1300	0+00.00	0.0000	666.97	CL ROAD
1324	0+25.21	29.3979	665.84	GUY WIRE ANCHOR
1346	0+37.77	-22.7142	666.30	TOP OF BERM
1351	0+39.88	-26.3977	665.66	CL DITCH
1350	0+40.33	-28.8276	665.79	TOP OF BERM
1345	0+43.54	-47.6548	665.57	SPOT ELEV
1302	0+44.48	10.1504	666.67	ASPH PVT
1328	0+47.94	-10.4798	666.77	ASPH PVT
1323	0+48.17	19.0153	666.37	SPOT ELEV
1318	0+48.05	50.8043	665.08	SPOT ELEV
1299	0+48.81	-0.1096	666.87	CL ROAD
1322	0+52.54	27.7043	665.80	GUY POLE
1352	0+53.07	-26.6826	664.89	CL DITCH
1353	0+58.63	-26.0853	664.63	CL DITCH
1349	0+58.72	-29.3662	665.35	TOP OF BERM
1347	0+60.06	-23.0629	665.85	TOP OF BERM
1354	0+61.04	-26.0877	664.13	12" C P N INV

PLEASE NOTE:

SIZE: 12"

TYPE: C=CONC
V=VT
I=IRON
ST=STEEL
PL=PLASTIC
CM=CONC
METAL

P: PIPE

DIRECTION:
N.S.E.W.N.W.
N.E.S.W.S.E

HOW SHOT WAS
TAKEN:
INV=INVERT
INS=INSIDE TOP
TOP=TOP OF PIPE
SPN=SPRING LINE

If you have any questions regarding these procedures, please contact Brian S. Miller, Technical Specialist, Lucas County Engineer's Office. (419) 213-4540 x. 2074 or bsmiller@co.lucas.oh.us.